CLAIMS

1. A cold-cathode fluorescent lamp, comprising:

a sealed lighting tube including an ionisable gas or vapour

at least one electrode provided at an end of said tube,

a coating on at least part of an inner surface of said tube wherein ionisation of said gas or vapour on energisation of said electrode causes said coating to provide visible radiation, and

at least one electron or ion shield fitted to and covering at least a sputtering vulnerable portion of the tip of said electrode and capable of withstanding the operating temperature of said electrode.

2. A cold-cathode fluorescent lamp, as claimed in claim 1 wherein said shield comprises a cap provided over at least part of at least those surface(s) of said electrode facing the other end of said tube, and wherein said cap is made from a high heat resistant and electrically insulating material:

3. A cold-cathode fluorescent lamp as claimed in claim 1 wherein the lighting tube is of an outside diameter of less than 12 mm.

4. A cold-cathode fluorescent lamp as claimed in claim 1 wherein said shield is made of a material selected from any one of enamel, ceramic and quartz.

5. A cold-cathode fluorescent lamp as claimed in claim 1 wherein where the electrode is tube shaped and said shield is annular ring shaped with an inside diameter slightly smaller than the inside diameter of said tubular cylindrical electrode and an outside diameter slightly larger than the outside diameter of said cylindrical electrode.

6. A cold-cathode fluorescent lamp as claimed in claim 1 wherein where the electrode is rod shaped, said shield is disk shaped with an outside diameter slightly larger than the outside diameter of said cylindrical electrode.

7. A cold-cathode fluorescent lamp as claimed in claim 1 wherein where the electrode is rod shaped, said shield is annular ring shaped with an outside diameter slightly larger than the outside diameter of said cylindrical electrode and with a central opening there through.

8. A cold-cathode fluorescent lamp as claimed in claim 1 wherein two of said electrodes are provided, one at each end of said lighting tube.

9. A cold-cathode fluorescent lamp as claimed in claim 1 wherein said electrode is provided within said lighting tube rather than at the end.

10. A cold-cathode fluorescent lamp as claimed in claim 9 wherein said shield comprises a cap provided over at least part of the surface(s) of that portion of said electrode proximal most to the ionization region within said lighting tube and wherein said cap is made from a high heat resistant and electrically insulating material.

11. A cold-cathode fluorescent lamp as claimed in claim 10 wherein said at least part of the surface(s) of that portion of the electrode are those surface which are portions of low heat transfer.

12. A cold-cathode fluorescent lamp as claimed in claim 10 wherein said at least part of the surface(s) of that portion of the electrode are those surface which are facing the ionisation region.

13. An electron shield for an electrode for a cold-cathode fluorescent lamp as claimed in claim 1 wherein said shield being of a kind to engage the tip of said electrode and capable of being positioned over at least part of at least those surface(s) of said electrode facing the other end of said tube.

14. A method of reducing sputter within a cold-cathode fluorescent lamp as claimed in claim 1

the method comprising engaging said shield to the tip of said electrode in a manner to at least part cover at least those surface(s) of said tip of said electrode facing the other end of said tube.

15. A method of reducing sputter in a cold-cathode fluorescent lamp as claimed in claim 1 wherein said electrode provided juxtaposed a region of said inner surface of the lighting tube

the method comprising the positioning of said shield over at least part of the surface(s) of that portion of said electrode proximal most to the ionisation region within said lighting tube .

16. A cold-cathode fluorescent lamp as claimed in claim 1 wherein said electrode comprising a pair of plate shaped electrodes provided at an end region of the lighting tube, each electrode positioned juxtaposed and with the planes of their plates parallel to each other

wherein each said electrode of said pair includes a shield provided over at least part of at least those surface(s) of said electrode facing the other end of said tube.

17. A cold-cathode fluorescent lamp as claimed in claim 1 wherein said electrode comprising a pair of plate shaped electrodes provided within the lighting tube, each electrode positioned juxtaposed and with the planes of their plates parallel to each other and each positioned adjacent the ionisation region within said lighting enclosure

wherein at least part of the surface(s) of that portion of each said electrode proximal most to said ionisation region are overlaid by said shield.

18. An electron shield for an electrode for a cold-cathode fluorescent lamp as claimed in claim 1 wherein said electrode comprising a pair of plate shaped

electrodes provided at an end region of the lighting tube, each electrode positioned juxtaposed and with the planes of their plates parallel to each and wherein the planes are parallel to the elongate axis of said lighting tube,

wherein said shield being of a kind to engage the edge of either plate of said electrode facing the other end of said lighting tube.

19. A method of reducing sputter within a cold-cathode fluorescent lamp as claimed in claim 1 wherein said electrode comprising a pair of electrodes provided at an end region of the lighting tube, each electrode positioned juxtaposed and with the planes of their plates parallel to each other wherein the planes of said plates are parallel to the elongate axis of said lighting tube,

the method comprising engaging said shield to edge of at least one of said plates of said electrode facing the other end of said lighting tube, in a manner to at least part cover at least those edges(s) of said electrode facing the other end of said tube,

20. A method of reducing sputter within a cold-cathode fluorescent lamp as claimed in claim 1 wherein said electrode comprising a pair of electrodes, each electrode positioned juxtaposed and with the planes of their plates parallel to each other and provided juxtaposed a region of said inner surface of the lighting tube,

the method comprising the positioning of said shield over at least part of the surface(s) of that portion of at least one of said plates of said electrode proximal most to the ionisation region within said lighting tube.